CLAIMS

1. An isolated polynucleotide comprising:

   a) a first nucleotide sequence encoding a protein that exhibits interferon alpha type activity, wherein the first nucleotide has a cytosine at nucleotide position 771 or the position equivalent thereto, and wherein the first nucleotide sequence hybridizes to SEQ ID NO. 1 under stringent hybridization conditions; or

   b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

2. The isolated polynucleotide of claim 1, wherein the first nucleotide sequence has an identity of at least 90% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits interferon alpha-17 type activity.

3. An isolated polynucleotide comprising:

   a) a first nucleotide sequence encoding a protein that exhibits interferon alpha type activity and that has an identity of at least 90% with all or part of SEQ ID NO. 1 or the coding region thereof, provided that the first nucleotide sequence has a cytosine at nucleotide position 771 or the position equivalent thereto; or

   b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

4. The isolated polynucleotide of claim 3, wherein the presence of the cytosine at nucleotide position 771 or the equivalent position is due to a g771c SNP or the same

SNP at the equivalent position.

5. The isolated polynucleotide of claim 3, wherein the first nucleotide sequence is the cDNA or mRNA of SEQ ID No. 1.

6. The isolated polynucleotide of claim 3, wherein the first nucleotide sequence has an identity of at least 95% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits interferon alpha-17 type activity.

7. The isolated polynucleotide of claim 6, wherein the first nucleotide sequence has an identity of at least 99% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits human interferon alpha-17 type activity.

8. An isolated polynucleotide comprising:

a) a first nucleotide sequence comprising SEQ ID NO. 1, provided that the first nucleotide sequence has a cytosine at nucleotide position 771 or the position equivalent thereto; or

b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

9. An isolated polynucleotide comprising:

a) a first nucleotide sequence encoding a protein that exhibits interferon alpha type activity, wherein the first nucleotide sequence has an adenine inserted at nucleotide position 808 or the position equivalent thereto, and wherein the first nucleotide sequence hybridizes to SEQ ID NO. 1 under stringent hybridization conditions; or

b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

10. The isolated polynucleotide of claim 9, wherein the first nucleotide sequence has an identity of at least 80% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits interferon alpha-17 type activity.

11. An isolated polynucleotide comprising:

a) a first nucleotide sequence encoding a protein that exhibits interferon-type activity and that has an identity of at least 80% with all or part of SEQ ID NO. 1 or the coding region thereof, provided that the first nucleotide sequence has an adenine inserted at nucleotide position 808 or the position equivalent thereto; or

b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

12. The isolated polynucleotide of claim 11, wherein the presence of the adenine at nucleotide position 808 or the equivalent position is due to a SNP insertion of the adenine at position 808 or the equivalent position.

13. The isolated polynucleotide of claim 11, wherein the first nucleotide sequence is the cDNA or mRNA of SEQ ID No. 1.

14. The isolated polynucleotide of claim 11, wherein the first nucleotide sequence has an identity of at least 90% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits interferon alpha type activity.

15. The isolated polynucleotide of claim 14, wherein the first nucleotide sequence has an identity of at least 95% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits interferon alpha-17 type activity.

16. The isolated polynucleotide of claim 15, wherein the first nucleotide sequence has an identity of at least 99% with all or part of SEQ ID NO. 1 or the coding region thereof and encodes a protein that exhibits human interferon alpha-17 type activity.

17. An isolated polynucleotide comprising:

a) a first nucleotide sequence comprising SEQ ID NO. 1, provided that the first nucleotide sequence has an adenine inserted at nucleotide position 808 or the position equivalent thereto; or

b) a complementary nucleotide sequence that is strictly complementary to the first nucleotide sequence.

18. An isolated polynucleotide that codes for:

a) a polypeptide comprising a peptide sequence that has an identity of at least 99% with SEQ ID NO. 2, provided that the polypeptide comprises a G45R SNP or the same SNP at the equivalent position; or

b) a portion of the polypeptide comprising the G45R SNP or the same SNP at the equivalent position, provided that the portion of the polypeptide exhibits substantially the same biological activity as the mature or the immature form of the polypeptide.

19. An isolated polynucleotide that codes for:

a) a polypeptide comprising a peptide sequence that has an identity of at least

90% with SEQ ID NO. 3; or

b) a portion of the polypeptide, provided that the portion of the polypeptide exhibits substantially the same biological activity as the mature or the immature form of the polypeptide.

20. The isolated polynucleotide of claim 19, wherein the polypeptide consists of said peptide sequence.

21. The isolated polynucleotide of claim 19, wherein said peptide sequence has an identity of at least 95% with SEQ ID NO. 3, and portion of the polypeptide exhibits substantially the same biological activity as the mature or the immature form of the polypeptide.

22. The isolated polynucleotide of claim 21, wherein said peptide sequence has an identity of at least 99% with SEQ ID NO. 3, and portion of the polypeptide exhibits substantially the same biological activity as the mature or the immature form of the polypeptide.

23. A host cell comprising a recombinant vector comprising the isolated polynucleotide of claim 3, 8, 11, 17, 18, or 19.

24. A method for detecting or genotyping a first nucleic acid sequence having an identity of at least 99% with all or part of SEQ ID NO. 1 or the coding region thereof, or the strict complement thereof, comprising hybridizing to the first nucleic acid sequence a second nucleic acid sequence that has an identity of at least 99% with the strict complement of all or part of SEQ ID NO. 1 or the coding region thereof, or the strict

complement thereof, provided that the second nucleic acid sequence comprises one or both of a g771c SNP and a 808Ins(a) SNP or the same SNP(s) at equivalent position(s).

25. A method for determining statistically relevant associations between a disease or disease resistance and one or both of a g771c SNP and a 808Ins(a) SNP, comprising:

a) genotyping a sample of individuals with respect to said SNP(s);

b) determining the distribution of said disease or resistance within the sample;

c) comparing the genotype data with the distribution of said disease or resistance; and

d) analyzing the comparison for statistically relevant associations.

26. A method for diagnosing a disease, or determining a prognosis of or resistance to the disease, in an individual, comprising: determining whether an interferon alpha-17 gene of the individual comprises one or both of a g771c SNP and a 808Ins(a) SNP.

27. An isolated polypeptide comprising a peptide sequence having an identity of at least 95% with:

a) the amino acid sequence of SEQ ID NO. 2, or

b) the amino acid sequence of amino acids 24 through 189 of SEQ ID NO. 2, provided that the peptide sequence comprises the G45R SNP or the same SNP at an equivalent position.

28. The isolated polypeptide of claim 27, wherein the peptide sequence has an identity of at least 99% with the amino acid sequence of a) or b).

29. An isolated polypeptide comprising a peptide sequence having an identity of at least 90% with:

a) the amino acid sequence of SEQ ID NO. 3, or

b) the amino acid sequence of amino acids 24 through 57 of SEQ ID NO. 3.

30. The isolated polypeptide of claim 29, wherein the isolated polypeptide consists of the peptide sequence.

31. The isolated polypeptide of claim 29, wherein the peptide sequence has an identity of at least 95% with the amino acid sequence of a) or b).

32. The isolated polypeptide of claim 31, wherein the peptide sequence has an identity of at least 99% with the amino acid sequence of a) or b).

33. An antibody immunospecific for the isolated polypeptide of claim 27 or 29.

34. A method for treating or preventing a disease or disorder linked to interferon alpha-17, comprising administering to an individual a therapeutically effective amount of a therapeutic agent comprising the antibody of claim 33, with a pharmaceutically acceptable excipient.

35. A method for preventing or treating a viral disease, comprising administering to an individual a therapeutically effective amount of a therapeutic agent comprising the antibody of claim 33, with a pharmaceutically acceptable excipient.

36. A method for treating or preventing a disease or disorder linked to interferon alpha-17, comprising administering to an individual a therapeutically effective amount of a

therapeutic agent comprising the isolated polypeptide of claim 27 or 29, with a pharmaceutically acceptable excipient.

37. A method for preventing or treating a viral disease, comprising administering to an individual a therapeutically effective amount of a therapeutic agent comprising the isolated polypeptide of claim 27 or 29, with a pharmaceutically acceptable excipient.

38. A method for treating or preventing a disease or disorder linked to interferon alpha-17, comprising administering to an individual a therapeutically effective amount of a therapeutic agent comprising an antibody immunospecific for the isolated polypeptide of claim 27 or 29, with a pharmaceutically acceptable excipient.

39. A method for preventing or treating a viral disease, comprising administering to an individual a therapeutically effective amount of a therapeutic agent comprising an antibody immunospecific for the isolated polypeptide of claim 27 or 29, with a pharmaceutically acceptable excipient.

40. A method for identifying a compound with an activity substantially the same as an activity of an interferon alpha-17 protein that comprises a G45R SNP or the same SNP at the equivalent position, comprising:

a) determining whether or the extent to which the compound exhibits an activity selected from the group consisting of dendritic cell maturation, cytokine release by CD4+ or CD8+ T-lymphocytes, cytokine release by monocytes, in vitro or in vivo antiviral activity, cellular antiproliferative activity on Daudi Burkitt's cell lines, cellular antiproliferative activity on TF-1 cell lines, *in vitro* or *in vivo* antiviral activity, and any combination of the foregoing

activities; and

b) comparing the activity determined in step a) with the activity of said interferon alpha-17 protein.

41. A method for identifying a compound with an activity substantially the same as an activity of a polypeptide comprising SEQ ID NO. 3, comprising:

a) determining whether or the extent to which said compound exhibits an activity selected from the group consisting of dendritic cell maturation, cytokine release by CD4+ or CD8+ T-lymphocytes, cytokine release by monocytes, *in vitro* or *in vivo* antiviral activity, cellular antiproliferative activity on Daudi Burkitt's cell lines, cellular antiproliferative activity on TF-1 cell lines, and any combination of the foregoing activities; and

b) comparing the activity determined in step a) with the activity of said polypeptide.

42. A therapeutic agent comprising one or more compositions selected from the group consisting of:

a) an isolated polynucleotide comprising: (i) a first nucleotide sequence encoding a protein that exhibits interferon alpha-17 type activity and that has an identity of at least 99% with all or part of SEQ ID NO. 1 or the coding region thereof, provided that the first nucleotide sequence has a cytosine at nucleotide position 771 or the equivalent position thereto, or (ii) a complementary nucleotide sequence that has an identity of at least 99% identity with the strict complement of the first nucleotide sequence;

b) a recombinant vector comprising said isolated polynucleotide or the cDNA or

mRNA thereof;

c) a host cell comprising said recombinant vector;

d) an isolated polypeptide comprising: (i) a peptide sequence that has an identity of at least 99% with SEQ ID NO. 2, provided that said peptide sequence comprises a G45R SNP or the same SNP at the equivalent position, or (ii) a portion of said peptide sequence comprising said SNP, provided that the portion of the peptide sequence exhibits substantially the same biological activity as the mature or immature form of the polypeptide; or

e) any combination of the compositions of a, b, c and d.

43. A method for genotyping a nucleic acid potentially comprising a g771c SNP or the same SNP at the equivalent position, comprising:

a) hybridizing an oligonucleotide to a portion of the nucleic acid that is adjacent to nucleotide residue position 771 or the equivalent position;

b) elongating the oligonucleotide in a solution comprising a labeled dideoxynucleotide complementary to cytosine; and

c) detecting in the elongated oligonucleotide the presence or absence of the labeled dideoxynucleotide at position 771 or the equivalent position.

44. A method for genotyping a nucleic acid potentially comprising a 808Ins(a) SNP or the same SNP at the equivalent position, comprising:

a) hybridizing an oligonucleotide to a portion of the nucleic acid that is adjacent to nucleotide residue position 808 or the equivalent position;

b) elongating the oligonucleotide in a solution comprising a labeled dideoxynucleotide complementary to adenine; and

c) detecting in the elongated oligonucleotide the presence or absence of the labeled dideoxynucleotide at position 808 or the equivalent position.